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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,527	10/23/2001	Anthony M. Chasser	1700A1	3962

7590 04/03/2003

PPG INDUSTRIES, INC.
Intellectual Property Department
One PPG Place
Pittsburgh, PA 15272

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

4

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,527

Applicant(s)

CHASSER ET AL.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Summary of the Claims

1. Claim 1 is drawn to a curable powder coating composition comprising a polymer having reactive functional groups, a curing agent reactable with the polymer, and a phenolic compound having substituents at the ortho-position relative to the hydroxy group. Claim 16 is drawn to a curable powder coating composition comprising an acrylic polymer having carboxylic acid functional groups, a beta-hydroxyalkylamide curing agents, and 2,6-di-tert-butyl-4-methylphenol. Claim 17 is drawn to a curable powder coating composition comprising an acrylic polymer having carboxylic acid functional groups, a beta-hydroxyalkylamide curing agent, and 2,6-di-tert-butyl-4-methylphenol, each in specified amounts. Claim 18 is drawn to a coated aluminum substrate containing a cured coating comprising a polymer having reactive functional groups, a curing agent reactable with the polymer, and a phenolic compound having substituents at the ortho-position relative to the hydroxy group. Claims 2-4 limit the phenolic compound, claims 5-7 and 15 limit the polymer, claims 8-12 limit the curing agent, and claims 12-14 limit amounts of the components.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-6, 8-15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Geary et al. as evidenced by Laver. Geary et al. (US 4,801,680 A) can be found on the applicant's Form PTO-1449.
4. Geary discloses thermosetting powder coating compositions comprising carboxylic acid-containing polyesters and beta-hydroxyalkylamide curing agents (col. 1 lines 34-39). Examples show bis-hydroxyethylamide compounds (example A) and carboxylic acid group-containing polyester polymers having M_n values of ~3500-4500. Example 1A suggests the combination of 72.4% by weight carboxylic acid-containing polyester, 4.3% by weight of a bis-hydroxyethylamide, and 1.5% by weight of Irganox® 1076. Laver provides the structure of Irganox® 1076, a phenolic compound having branched butyl groups in positions ortho to the hydroxy group. Example 2A shows the combination of carboxylic acid-containing polyester, carboxylic acid-containing acrylic polymer, a bis-hydroxyethylamide, and Irganox® 1076, anticipating the applicant's claim 15. Also, comparative examples show the combination of carboxylic acid-containing polyester, triglycidyl isocyanurate, and Irganox® 1076, anticipating the applicant's claims 10-11. The coatings are applied to metal substrates, including aluminum (col. 5 lines 36-38).
5. Claims 1-3, 5-6, 8, 10-15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chasser et al. in view of Laver. Chasser et al. (US 6,069,221 A) can be found on the applicant's Form PTO-1449.

6. Chasser discloses curable powder coating compositions comprising polymers with functional groups and curing agents reactive with the polymers that are applied to aluminum substrates (abstract). The polymers are selected from carboxylic acid-containing polyesters having M_n values of preferably 2000-3000 (col. 3 lines 9-24), carboxylic acid-containing acrylic polymers (col. 3 lines 59-64), carboxylic acid-containing polyurethane polymers (col. 4 lines 25-27), and epoxy-functional polymers (col. 4 lines 60-62). Polymers are used in preferred amounts of 50-85% by weight (col. 5 lines 38-43). Curing agents include beta-hydroxyalkylamides and triglycidylisocyanurate (col. 5 lines 50-67). Irganox antioxidants are noted as suitable additives (col. 6 lines 36-44). Example A shows the combination of a carboxylic acid-functional polyester, 12.9% by weight triglycidylisocyanurate, and ~1% by weight Irganox® 1076. Laver provides the structure of Irganox® 1076, a phenolic compound having branched butyl groups in positions ortho to the hydroxy group. Example C shows the combination of carboxylic acid-containing polyester, a beta-hydroxyalkylamide curing agent, and a phenolic UV stabilizer having substituents at ortho positions to the hydroxy group (Tinuvin 900).

7. Claims 1-6, 12-14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakae et al.

8. Nakae discloses powder coating compositions comprising epoxy-functional acrylic resins, polycarboxylic acid curing agents, and an antioxidant (abstract). Preferred phenol antioxidants include 2,6-di-*t*-butyl-4-methylphenol (col. 3 lines 56-67),

used in an amount of 0.1-10% by weight (col. 4 lines 63-67). The polymers have preferred M_n values of 3000-7000 (col. 5 lines 11-17), and coatings can be applied to aluminum substrates (col. 6 lines 26-30). Example 1 shows the combination of 75.8% by weight acrylic polymer, 20.7% by weight curing agent, and ~1% by weight 2,6-di-*t*-butyl-4-methylphenol.

9. Claims 1-5, 8-15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Laver as evidenced by Tobias et al.
10. Laver discloses powder coating compositions comprising an organic binder and a phenolic stabilizer having substituents in ortho positions to the hydroxy group (abstract). Organic binders include polyester-hydroxyalkylamides, polyester-triglycidylisocyanurates, and acrylate resins with hardener (col. 31 lines 14-20). Epoxy compounds, triglycidyl isocyanurate, and beta-hydroxyalkylamides are all mentioned for use as curing agents with carboxy-functional polyesters and polyacrylates (col. 31 line 62-col. 32 line 12; col. 33 lines 6-17). Primid® XL552 is noted as a suitable beta-hydroxyalkylamide. Tobias teaches Primid® XL552 as a bis-hydroxyethylamide (col. 4 lines 7-10). Stabilizers are used in preferred amounts of 0.05-3% by weight. Additional antioxidants, such as the first-mentioned 2,6-di-*t*-butyl-4-methylphenol, may be added (col. 34 lines 15-28). It is noted that the addition of phenolic additives of item 1 are preferred and included in amounts of 0.05-3% by weight (col. 42 line 64-col. 43 line 5). Preferred substrates include aluminum (col. 43 lines 32-34). Example 11 shows a

polymer used in an amount of 31.1% by weight, a curing agent used in an amount of 26.1% by weight, and a stabilizer in an amount of 0.7% by weight.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laver as evidenced by Tobias.

13. Laver and Tobias apply as above, encompassing each of the components of the applicant's claim 16 but failing to exemplify a combination of the specified components. The combination of carboxyl-functional acrylates and beta-hydroxyalkylamides is suggested in col. 31 line 62-col. 32 line 12 and col. 33 lines 6-17. The phenolic compound 2,6-di-tert-butyl-4-methylphenol is the first phenolic stabilizing additive mentioned in a list of preferred additives (col. 34 lines 15-29). Because the components are encompassed as usable together and because the inventive coatings are shown to have improved coloration reduction, it is the examiner's position that it would have been prima facie obvious to combine the claimed components in any amount necessary to form a powder coating having equally improved coloration reduction, as compared to the exemplified compositions.

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14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chasser et al. as evidenced by Laver and in view of Nakae et al.

15. Chasser and Laver apply as above, noting the use of reactive polymers, curing agents, and phenolic antioxidant compounds but failing to mention the use of 2,6-di-tert-butyl-4-methyl-phenol. Nakae teaches powder coating compositions comprising reactive polymers, curing agents, and phenolic antioxidants, where certain phenol antioxidants, including 2,6-di-tert-butyl-4-methyl-phenol, are preferred because of their melting points (col. 3 lines 8-67). Optimum melting points are chosen for improved blocking resistance and melt processibility. It is the examiner's position, therefore, that it would have been prima facie obvious to choose 2,6-di-tert-butyl-4-methyl-phenol as a phenolic antioxidant in Chasser's invention to form coatings having improved blocking resistance and melt processibility.

16. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Geary et al. as evidenced by Laver.

17. Geary and Laver apply as above, failing to exemplify the use of polymers having equivalent weights within 200-2,500. However, Geary notes that additional crystalline functional polyesters, having equivalent weights of 150-600, can be included to provide additional flexibility and/or impact resistance to the coating. It is the examiner's position that it would have been prima facie obvious to include functional polyesters having equivalent weights of 150-600 in Geary's powder coating compositions to provide flexibility and impact resistance to the resultant coatings.

18. Claims 4 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geary et al. as evidenced by Laver and in view of Nakae et al.
19. Geary and Laver apply as above, noting the use of carboxyl-functional acrylic polymers, beta-hydroxyalkylamide curing agents, and phenol antioxidants, but failing to mention the use of 2,6-di-tert-butyl-4-methyl-phenol. Nakae teaches powder coating compositions comprising reactive polymers, curing agents, and phenolic antioxidants, where certain phenol antioxidants, including 2,6-di-tert-butyl-4-methyl-phenol, are preferred because of their melting points (col. 3 lines 8-67). Optimum melting points are chosen for improved blocking resistance and melt processibility. It is the examiner's position, therefore, that it would have been prima facie obvious to choose 2,6-di-tert-butyl-4-methyl-phenol as a phenolic antioxidant in Geary's invention to form coatings having improved blocking resistance and melt processibility. Such a combination would teach the applicant's claims 16-17.
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
March 25, 2003



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700